

## LOST TIME ACCIDENTS IN FORESTRY - 1994

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### INTRODUCTION

This report summarises the information contained in the Forestry Accident Reporting Scheme (ARS) for 1994. This is the fifth year of data collection. Logging accidents for 1994 are summarised elsewhere (Parker, 1995). Forestry includes the following operations: nursery work, establishment, releasing, thinning to waste, pruning and forest maintenance.

The New Zealand Forest Owners' Association has accepted the responsibility for reporting forestry (and logging) accidents and this has contributed to the greater level of reporting in 1994 (Table 1). One hundred and twenty eight lost time accidents were reported in 1994 (January to December).

*Table 1 - Accidents recorded by the Scheme*

Accident Type	1993	1994
Fatal	0	0
Lost Time	56	128
Minor	8	10
Near Miss	2	4

The following definitions are used by the Scheme:

lost time - the injury causes the injured person to miss the next full day's scheduled work

minor - first aid or medical treatment required, but lost time as defined above does not apply

near miss - first aid or medical treatment not required but the incident could have caused injury (includes property damage).

### ACKNOWLEDGMENTS

*LIRO acknowledges the co-operation of the workers, contractors and companies that supplied the data used for these analyses.*

### ANALYSIS

#### Time of Accident Occurrence

The distribution of accidents throughout 1994 was more evenly spread across the year than in 1993 (Figure 1). A peak of

accidents occurred in the period February to May (59 accidents, 46% of all lost time accidents) and were mainly pruning (33 accidents) and thinning (13 accidents). In 1993 however, there was a peak of accidents in winter, July and August (29%) and a second peak during spring, November (17%). There were only 56 reported lost time accidents in 1993 so comparisons with 1994 are tentative. As the forestry ARS develops and reporting improves such comparisons will become more meaningful.

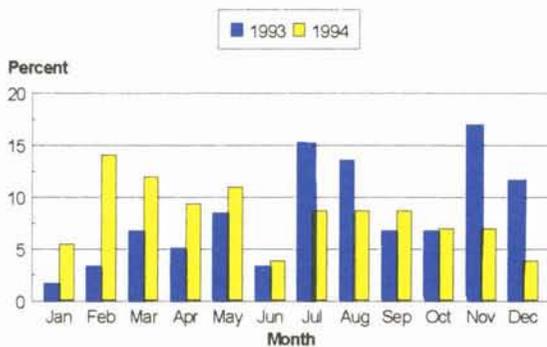


Figure 1 - Month of accident

Most accidents occurred early in the week (Figure 2), with 25% on Monday and 22% on Tuesday, and a decreasing number of accidents each day to the weekend. This is similar to the distribution of logging accidents where most injuries occurred early in the week (Parker, 1995).

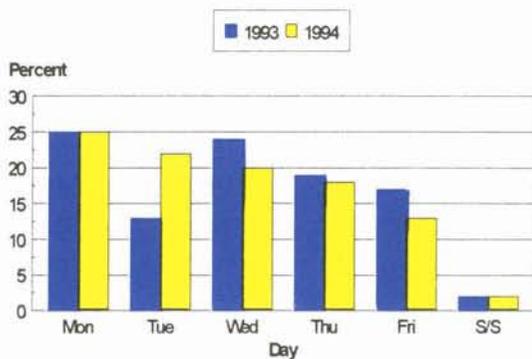


Figure 2 - Day of week of accident

More accidents occurred in the morning (Figure 3). The four hour period between 7 am and 10:59 am accounted for 57% of the accidents. The large number of injuries

between 10 am and 10:59 am in 1994 and 1993 was also apparent in the 1992 data. It is not known why this occurred. There was no unusual pattern in injury type over this period.

In the middle part of the day, 11 am to 12:59 pm there were only 19 (15%) accidents. This is similar to 1993 when 13% of accidents occurred in this period. One reason for this reduction in injury may be that many crews would have stopped for a meal break so there would be fewer people engaged in potentially hazardous activities.

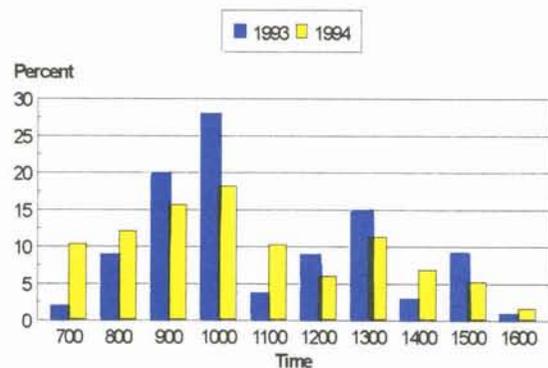


Figure 3 - Time of day of accident

### Type of Operation

Pruning accounted for 50% of forestry lost time accidents. The single most common accident was falling from the pruning ladder resulting in 14 injuries and 112 work days lost. Severity of injury, after falling from a ladder, ranged from one day lost, "grazed arm while sliding down the tree" to 30 days lost "landed on log, internal injuries".

Thinning to waste accounted for 18% of lost time accidents in 1994. Nine injuries were sustained after falling over (for example, "cut hangup, rubber soles slipped, tree fell on foot", 12 days lost; "slipped on pampas grass, fell on stump", 10 days lost).

Other activities in which people were injured were: planting 10 %, ("attacked by

wasps, multiple stings", two days lost; "infected blister from new boots", three days lost) and releasing 8% ("slasher into knee", one day lost; "slasher glanced off log, into thigh", four days lost).

The most frequent type of injury, (nine of 13) occurring during miscellaneous activities, (assessment, burnoffs, planning and plotting) was slipping over and injuring the hand, back, knee or ankle.

**Part of Body Injured and Type of Injury**

Injuries to the arms and shoulders accounted for 20% of all lost time accidents (Figure 4) and resulted in 123 days lost. Four arm strains (total of 18 days lost) were a result of pruning large branches and seven injuries were sustained when falling over (for example "slipped on ice, fell on saw", "slipped on slash", "slipped on slope"). There were eight injuries to the shoulders due to strains ("using pruners above head", "pruning big branches") and bruises ("tripped over while carrying ladder", "branch fell on shoulder", "ground gave way, ladder fell over").

Injuries to the lower torso accounted for 17% of all lost time accidents and resulted in a total of 120 work days lost. The most frequent injuries (eight) were strains to the back which occurred when falling from the tree when pruning (two injuries and six days lost), slipping down the slope while plotting (one injury, one day lost) and slipping over while walking (three injuries, 16 days lost). There were five bruise injuries, three sustained when falling from trees, one when hit by a pruned branch, and one after falling over. Other injuries were lacerations, two injuries were sustained in falls from ladders and resulted in internal injuries (30 and five days lost respectively).

There was an increase in the proportion of lost time injuries to the lower legs and

ankles (14% in 1994 compared with 9% in 1993). The single most common injury was a sprained ankle (16 of 18 lower leg injuries) resulting in 61 days lost. The remaining injuries were a fractured ankle ("fell off the top of a 4 m ladder") 20 days lost, and a cut lower leg ("using knife, put pruners on ground, walked into them"), 3 days lost.

The proportion of hand injuries (11%) has decreased from 1993 (25%). The most severe hand injuries were inflicted by the chainsaw, two while chainsaw pruning ("ladder rung broke, dropped chainsaw onto hand", 13 days lost, "ladder rocked, grabbed tree, finger hit bar tip", 15 days lost) and thinning ("cut trigger finger when dropped saw to push tree"), 10 days lost. Other hand injuries include three cuts on pruner blades, two crush injuries ("caught hand in tailgate of ute", "hand slipped off pruners, hit finger on ladder") and two infected hands ("slipped over, grabbed fern, cut hand", "blackberry scratch became infected"). A total of 71 days were lost due to hand injuries.

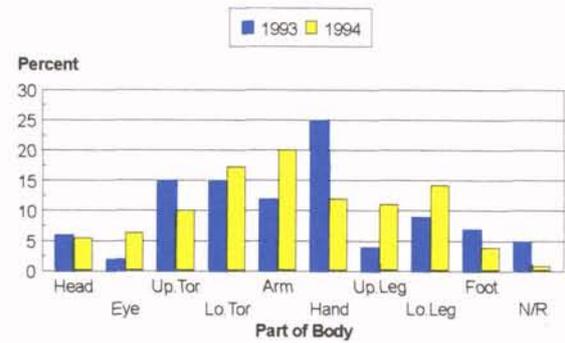


Figure 4 - Part of the body injured

Other parts of the body injured were: the head (6%), eye (6%), upper torso (10%), upper leg (11%) and foot (4%).

**Experience of Accident Victims**

Experience (in the particular job being carried out at the time of injury) has been presented as a median number of years worked, in addition to the average number of years in the job. The median is the



Figure 5 - Comparison of experience of total forestry workforce (Byers, 1995) with experience of injured forestry workers

experience of the middle worker if all the workers were arranged from least experienced to most experienced. In other words, 50% of the workers have less experience than the median and 50% have more. The problem with reporting average experience is that if there are a few people with many years experience they outweigh many people with little experience.

For example, the average experience of injured pruning workers was 2.4 years (54 pruners having one or less years experience and only 16 having more than five years experience). However, the median experience was one year, a much better indicator of the experience of the group of injured pruning workers.

Inexperienced workers were injured more frequently and at a rate greater than experienced workers. For example, 18% of the forestry workforce had less than six months experience (Byers, 1995) yet this group of inexperienced workers had 33% of all lost time injuries (Figure 5).

Figure 5 indicates that a forestry worker is at the greatest risk of injury in the first year of work in a particular job.

Appropriate training and supervision of the novice forestry worker are essential during this period to ensure the worker's safety.

The types of injuries sustained by the inexperienced workers differed from those of the more experienced workers. The 20 least experienced (three months or less in that job) and the 20 most experienced (more than four years) workers were compared:

- the inexperienced workers had more strains and sprains (10 injuries) than the experienced workers (four injuries). These injuries were mostly the result of slipping over while engaged in a wide range of tasks such as pruning, planting, plotting, and releasing. Only one inexperienced worker was injured while thinning.

- the experienced workers had more bruises and lacerations (eight and six injuries respectively) compared with inexperienced workers (three and three injuries respectively). The bruises were sustained in heavy falls (two down bluffs), and being hit by pruned branches and falling trees during thinning. Six

experienced workers were injured while thinning.

A greater proportion of experienced workers (16 of 20) than inexperienced workers (9 of 20) were engaged in the more hazardous tasks of pruning and thinning.

### Lost Time Per Accident

The number of days lost is frequently estimated so caution must be used when interpreting this information. The average ( $\pm$  standard error) number of days lost per accident was  $5.0 \pm 0.4$  which is not significantly less than for 1993 ( $5.8 \pm 1.1$  days). The number of days lost ranged from one to 30 days. A total of 630 work days were lost. At 236 working days per year, this equates to two years and eight months of lost work time. The median time lost was four days in 1994 and three days in 1993.

### DISCUSSION AND CONCLUSIONS

The number of lost time accidents reported to the Forestry ARS has increased considerably from previous years. This information is essential so that problems can be identified and measures taken to improve the welfare and safety of the forestry workforce.

Using accident records from other industries Heinrich (1959) estimated that in every group of 330 accidents of the same kind and involving the same person there would be, on average, one major injury, 29 minor injuries and 300 no-injury accidents.

Results from the Forestry ARS indicate the number of minor accidents and near miss incidents are still under-reported. These reports are needed to identify trends in accident type and problems with equipment, for example pruning ladders breaking under load.

Major findings to come from the 1994 Forestry ARS were:

- falls from pruning ladders continued to be the single greatest cause of injury
- forestry workers with less than one year's experience had a disproportionately greater rate of injury than more experienced forestry workers.

Most injuries resulted in less than six days off work. These are not recorded by the Accident Rehabilitation and Compensation Insurance Corporation (ACC) Integrated Information System database. The Forestry ARS is the most comprehensive record of New Zealand forestry accidents available and the accident reports are made by people who have a technical knowledge of forestry.

It is essential that the industry continues to support the ARS by reporting lost time and minor accidents and near miss incidents so that research, training and management efforts can be focused to improve forestry worker safety.

### REFERENCES

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